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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,424	12/27/2001	Peter Vischer	022101-002700US	9274
20350	7590	07/30/2004		
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER CHUNDURU, SURYAPRABHA	
			ART UNIT	PAPER NUMBER
			1637	

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/033,424	VISCHER, PETER	
	Examiner	Art Unit	
	Suryaprabha Chunduru	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicants' response to the office action and amendment filed on March 15, 2004 has been entered.
2. Claims 5-12 are cancelled. Claims 1-4 are pending.

Response to Arguments

3. Applicant's response to the office action is fully considered and is found not persuasive.
4. The following is the rejection made in the previous office action under obviousness type double patenting:

A. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/033,426 (US 2002/0164619).

Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the co-pending application are drawn to a method for processing a nucleic acid sample contained in a liquid comprising

(a) introducing said sample into a chamber of a cartridge which contains a chip shaped carrier having an active surface which carries an array of oligonucleotides, said surface facing an inner surface of a wall of said cartridge, said chamber having a narrow interior and including a channel, a portion of said channel lying between said active surface of said chip shaped carrier and the inner surface of said wall, a rigid segment of said wall being adapted to be swung about a predetermined angle back and forth about a torsion bar, swinging of said rigid segment in one sense moving one end thereof towards

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said active surface, and swinging of the rigid segment in an opposite sense moving said one end of the rigid segment away from said active surface,

(b) positioning said cartridge into a cartridge holder which holds said cartridge, said positioning being effected before or after introduction of said sample into said chamber, and

(c) swinging said rigid segment of said wall about said predetermined angle back and forth about said torsion bar in order to cause relative motion of the liquid sample contained in the channel with respect to said active surface of said chip shaped carrier.

Claim 1 of the instant invention is drawn to the said method as disclosed in the co-pending application with an obvious variation in reciting the method steps. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

B. Claims 2-4 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/033,426 in view of Gazeau (Pub No. US 2003/0059341 A1).

Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the co-pending application are drawn to a method for processing a nucleic acid sample contained in a liquid comprising

(a) introducing said sample into a chamber of a cartridge which contains a chip shaped carrier having an active surface which carries an array of oligonucleotides, said surface facing an inner surface of a wall of said cartridge, said chamber having a narrow interior and including a channel, a portion of said channel lying between said active surface of said chip shaped carrier and the inner surface of said wall, a rigid segment of

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said wall being adapted to be swung about a predetermined angle back and forth about a torsion bar, swinging of said rigid segment in one sense moving one end thereof towards said active surface, and swinging of the rigid segment in an opposite sense moving said one end of the rigid segment away from said active surface,

(b) positioning said cartridge into a cartridge holder which holds said cartridge, said positioning being effected before or after introduction of said sample into said chamber, and

(c) swinging said rigid segment of said wall about said predetermined angle back and forth about said torsion bar in order to cause relative motion of the liquid sample contained in the channel with respect to said active surface of said chip shaped carrier. However the method in claim 1 of the co-pending application does not teach curved channel, position of the cartridge and the channel in relation to the active surface of the biochip,

Gazeau teaches a method for processing a biological sample comprising a rotatable rotor fixed at an angle to facilitate motion of liquid in the biochip carrier (see page 1, paragraph 007, paragraph 0020, page 2, paragraph 0028, paragraph 0030). Gazeau also discloses that the biochip carrier (cartridge holder) is held substantially vertical plane and the biochip active surface is adjacent to a central portion of said liquid dispensing channel (see page 1, paragraph 0009, paragraph 0018, page 2, paragraph 0024); liquid dispensing nozzles (channels) are located on a circumference whose radius is substantially equal to that of the center of the reactors to dispensing liquids in to the reactors are connected by catheters (flexible tubes) to cover hermetic enclosure (curved), indicating channels are curved (see page 1, paragraph 0018, paragraphs 0011-0012, Figs.

5-6, and 8 showing curved carrier channels). Further, liquid dispensing nozzles could be telescoping (which is curved) in structure (see page 2, paragraph 0026).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of processing a nucleic acid sample contained in a liquid as disclosed in the co-pending application with the limitations as taught by Gazeau to achieve an expected advantage of developing an improved method for processing a nucleic acid sample contained in a liquid. An ordinary practitioner would have been motivated to combine the method as disclosed in the co-pending application with the teachings of Gazeau for the advantages of developing an improved method for processing a biological sample by including parameters as taught by Gazeau because such limitations would enhance sample contact with the active surface of a biochip and increase the detection process of the sample.

This is a provisional obviousness-type double patenting rejection.

Response to arguments:

Applicants' arguments regarding the above rejection are fully considered and found not persuasive. Applicants' argue that the rejection is based simply on an assertion that the method of claim 1 is an obvious variation of the method of claim 1 in the '426 application and no convincing reasoning is provided. Applicants also analyze that claim 1 of the '426 application is directed to methods comprising a chamber in which an oligonucleotide array faces a wall and the instant claim 1 is drawn to the use of a chip shaped carrier held in a cartridge and a cartridge holder. This argument is fully considered and found not persuasive. Examiner notes that oligonucleotide array facing a wall in a

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chamber indicates that the array was held vertically in a chamber (holder or a carrier). Thus in a broad interpretation of claim 1, the instant claim 1 reciting the use of a chip shaped carrier held in cartridge is encompassed in claim 1 of '426 co-pending application. Applicants also analyze that the agitation in '426 application is achieved by swinging of the rigid segment within the cartridge, and in the instant application, and in the instant application agitation by oscillating the entire cartridge. This argument is fully considered and found not persuasive. Examiner notes that oscillation and agitation are alternative terms for motion or movement. Thus in a broad interpretation the agitation by oscillating in the instant application and agitation by swinging of the rigid segment from one end to the other in the co-pending '426 application, indicates the same function, the movement or motion. These obvious variations are not patentably distinct.

Regarding the claims 2-4, Applicants also argue that the instant claims are not obvious over '426 in view of Gazeau since Gazeau teaches yet another method of agitation and nor reasoning was provided to show the additional limitations are obvious or suggested by the reference. Applicants' arguments are fully considered and found not persuasive. Gazeau does teach the additional limitations of the instant claims 2-4, since these limitations broadly read on a simple rotatable rotor system comprising a central portion to which vertical cartridges are attached to hold the arrays in a vertical plane, which indicates oscillation of entire cartridge holding an array. Thus it is obvious to modify the method as disclosed in '426 application with the step of oscillating type of agitation to achieve the method as claimed in the instant application which would enhance sample contact with the active surface of a biochip and increase the detection process of the sample. Thus the rejection under provisional obviousness type of

double-patenting is maintained herein.

5. The following is the rejection made in the previous office action under 35 USC 103(a):

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao et al. (USPN. 6,589,740) and in view of Gazeau (Pub No. US 2003/0059341 A1).

Nakao et al. teach a method of claim 1, for processing a nucleic acid sample contained in a liquid (see column 2, lines 29-56) comprising

(a) introducing said sample into a chamber of a cartridge (chip case) (see column 6, lines 2-11) which contains a chip shaped carrier (biochip) having an active surface which carries an array of oligonucleotides (probes) (column 2, lines 41-44), said chamber having a narrow interior and including a channel (a unit for supplying washing solution into the biochip case) (see column 6, lines 2-11);

(b) positioning said cartridge into a cartridge holder (container) which holds said cartridge, said positioning being effected before or after introduction of said sample into said chamber (see column 2, lines 41-56), and

(c) turning on and off the pressurized-type supplying unit allow the hybridization solution to remain on the biochip and facilitate hybridization with respect to said active surface of said chip shaped carrier (see column 6, lines 6-22). However, Nakao et al. did not teach oscillating said cartridge holder on an axis of rotation, moving back and forth at an angular position in order to cause relative motion of the liquid contained in said channel with respect to said active surface (biochip).

Gazeau teaches a method of claims 1-4, for processing a biological sample

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comprising a rotatable rotor fixed at an angle to facilitate motion of liquid in the biochip carrier (see page 1, paragraph 007, paragraph 0020, page 2, paragraph 0028, paragraph 0030). Gazeau also discloses that the biochip carrier (cartridge holder) is held substantially vertical plane and the biochip active surface is adjacent to a central portion of said liquid dispensing channel (see page 1, paragraph 0009, paragraph 0018, page 2, paragraph 0024); liquid dispensing nozzles (channels) are located on a circumference whose radius is substantially equal to that of the center of the reactors to dispensing liquids in to the reactors are connected by catheters (flexible tubes) to cover hermetic enclosure (curved), indicating channels are curved (see page 1, paragraph 0018, paragraphs 0011-0012, Figs. 5-6, and 8 showing curved carrier channels). Further, liquid dispensing nozzles could be telescoping (which is curved) in structure (see page 2, paragraph 0026).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of processing a nucleic acid sample contained in a liquid as taught by Nakao et al. with the rotatable rotor or agitator as taught by Gazeau, which is applicable to facilitate motion of the liquid because Gazeau states that “the succession of rotational starts and stops agitates the liquids and accelerates washing of the biochips” (see page 2, paragraph 0030). An ordinary practitioner would have been motivated to combine the method of Nakao et al. with the teachings of Gazeau for the advantages of developing an improved method for processing a biological sample by including agitating parameter because such limitation would enhance motion of the sample containing liquid and facilitate enhanced contact with the active surface of a biochip and increase the detection process of the sample.

Response to arguments:

With regard to the above rejection, applicants arguments are fully considered and found not persuasive. Applicants' argue that Nakao fails to teach oscillating a cartridge to agitate the solution over the array and argue that Gazeau teaches succession of rotational starts and stops agitates the liquids and the examiner has not identified nothing in the cited references, alone or in combination, that discloses or suggest agitating the sample solution over the array using the step of oscillating a cartridge as claimed in the instant application. Applicants arguments are fully considered and found not persuasive. Nakao does disclose a method of contacting a sample with a nucleic acid array through a pressurized-type of supplying unit, wherein the movement or motion of solution under a pressure facilitates contact of the sample with the said nucleic acid array. Gazeau teaches succession of rotational starts and stops that agitates the liquids which indicates a simple rotatable rotor or oscillating system comprising a central portion to which vertical cartridges are attached to hold the arrays in a vertical plane, which facilitates oscillation of entire cartridge holding an array. Both the cited references teach alternate ways of facilitating contact of solutions with said nucleic acid array. Gazeau reference specifically points out agitation of the entire cartridge to facilitate the contact of liquids with said nucleic acid array. Thus the recitation of "oscillating a cartridge that holds an array" as claimed in the instant application broadly reads on the succession of rotational starts and stops agitating the liquids as taught by Gazeau. Thus it is obvious to modify the method of Nakao with addition of the step of oscillating type of agitation to achieve the method as claimed in the instant application which would enhance sample contact with the active

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surface of a biochip and increase the detection process of the sample. Thus Nakao in view of Gazeau does suggest or motivate one skilled in the art to combine or modify the teaching of the cited references. Thus the rejection is maintained herein.

Conclusion

No claims are allowable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 571-272-0783. The examiner can normally be reached on 8.30A.M. - 4.30P.M, Mon - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion reached on 571-272-0782. The fax phone numbers for the organization where this application or proceeding is assigned are 703872-9306 for regular communications and - for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

^{gpc}
Suryaprabha Chunduru
July 27, 2004

Jehanne Sitton
JEHANNE SITTON
PRIMARY EXAMINER
7/28/04